

# Rapid Screening for drugs and poisons in emergency medical care and clinical forensic toxicology.

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# 1995 Fiscal Year Final Research Report Summary

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## Rapid Screening for drugs and poisons in emergency medical care and clinical forensic toxicology.

Research Project

### Project/Area Number

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05404027

### Research Category

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Grant-in-Aid for General Scientific Research (A)

### Allocation Type

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Single-year Grants

### Research Field

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Legal medicine

### Research Institution

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Kanazawa University

### Principal Investigator

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### Project Period (FY)

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1993 – 1995

### Keywords

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Emergency Medical Care / Pharmacokinetics / Quality Control / Clinical Forensic Medicine / Forensic Toxicology / Rapid Screening System / REMEDI-  
HS System

## Research Abstract

The present research is composed of basic and practical studies. Furthermore, the basic study is divided into the following three subjects : 1. pharmacokinetic study, 2. study on quality control and 3. development of new analytical methods for drugs and poisons.

1. The mechanism of interindividual differences on drug action and toxicity was investigated by using physiological pharmacokinetic analyzes. Systematic approach to individualizing the dose was established. In order to predict the change during regeneration and recovery from hepatic damage, an altered AST was found to be a good index of metabolic function. Quantitative relationship between structure and peritoneal membrane transport for acidic drugs were also established. The potential effects of chemical drugs on the effects of biotechnological drugs were discovered.

2. IRMA,EIA and CLEIA methods were studied for LH,FSH,etc. in the plasma in a hospital laboratory. Based on the results obtained, the importance of quality control was concretely demonstrated.

3. (1) An analytical method for benzodiazepines was newly developed using supercritical fluid extraction and supercritical fluid chromatography. (2) The availability of rapid quantitative analytical system (REMEDI-HS) was basically examined. Practically, REMEDI-HS system was applied to the samples in emergency medical care and medico-legal autopsy cases, and the advantages and disadvantages of the system were discussed. (3) Pulse heating method was applied to the analysis of volatile substances including widely used anesthetics. (4) Even in the formalin-fixed tissues, methamphetamine, volatile substances, diazepam and chlorpromazine were determined by GC-MS.

In emergency medical care and medico-legal autopsy cases, blood and urine were analyzed by the screening system above. Among the emergency care cases, there was a case with successful diagnosis as an acute bromisovalum intoxication by the system, and the information much contributed to the specific therapy of the patient. In the autopsy cases, there were cases in which methamphetamine and barbitol were determined in the lethal and therapeutic level, respectively. In such cases, drug analysis gives useful information to assess objective evidence on dead bodies.◀ Less

## Research Products (80 results)

All Other

All Publications (80 results)

[Publications] 中島恵美 他: "ラジオレセプターアッセイによる中枢神経作用薬の微量定量法の確立とラットにおける体内動態解析への応用" Jpn.J.Hosp.Pharm.19. 111-118 (1993) ▼

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